

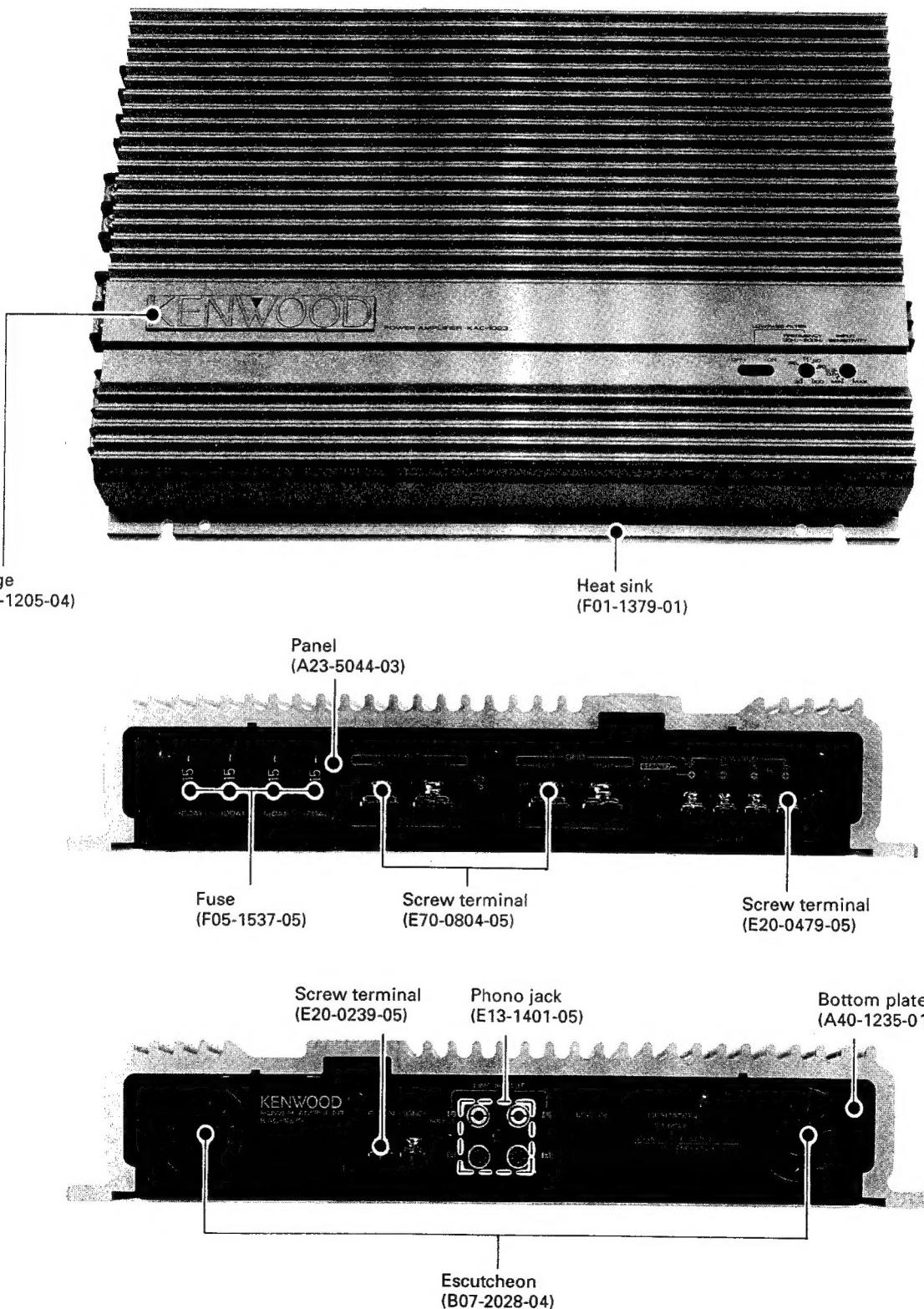
STEREO POWER AMPLIFIER

# KAC-1023

## SERVICE MANUAL

KENWOOD

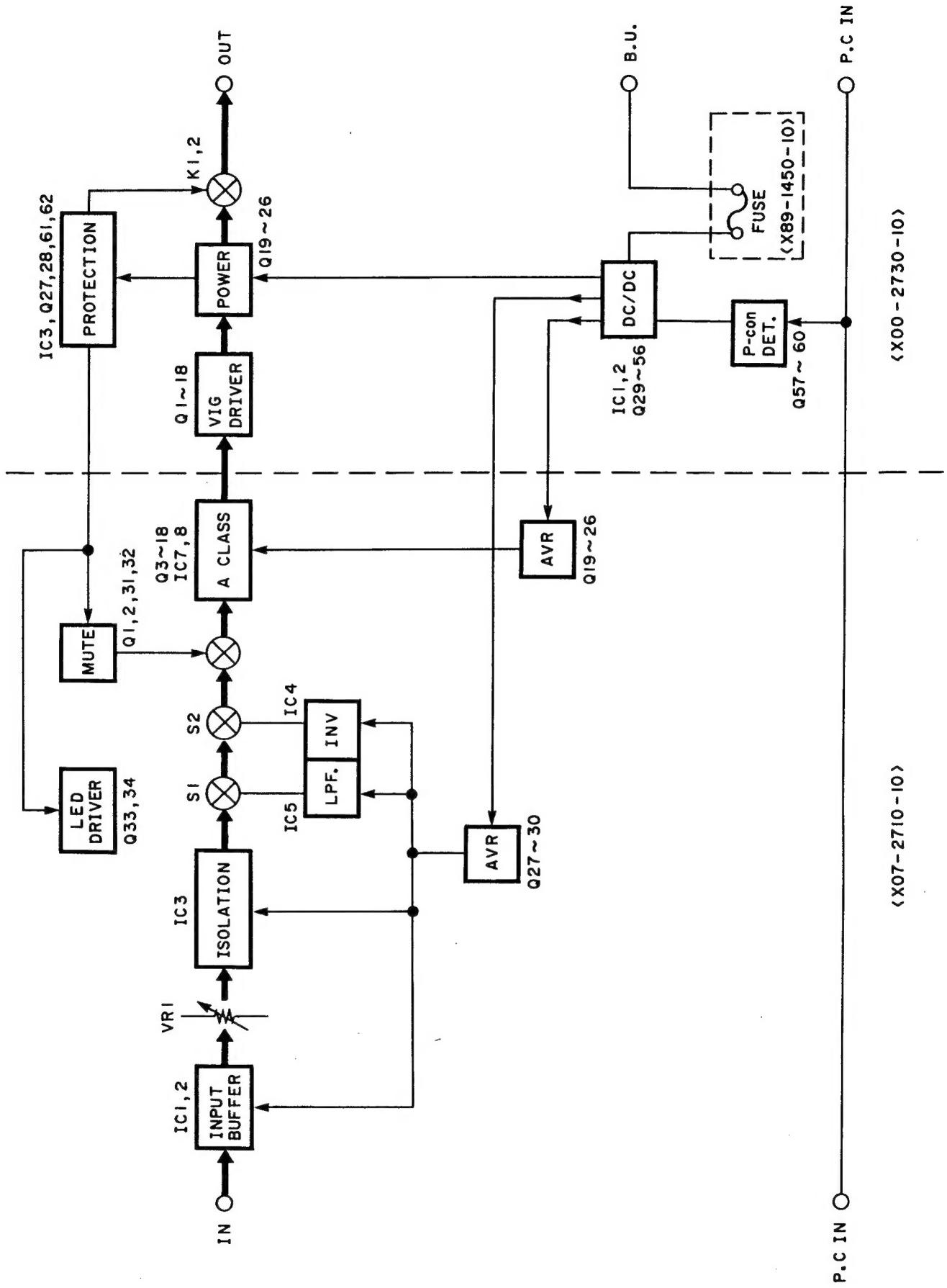
© 1992-2 PRINTED IN JAPAN  
B51-6413-00(O)3677



**CONTENTS****CONTENTS**

BLOCK DIAGRAM .....	3
CIRCUIT DESCRIPTION	
1. DESCRIPTION OF COMPONENTS .....	4
2. TWO-COLOR LED .....	5
3. DC/DC CIRCUIT WITH PWM.....	6
ADJUSTMENT .....	7
PC BOARD (FOIL SIDE VIEWS) .....	8
SCHEMATIC DIAGRAM .....	11
EXPLODED VIEW .....	19
PARTS LIST .....	20
SPECIFICATIONS .....	BACK COVER

## BLOCK DIAGRAM



## CIRCUIT DESCRIPTION

**1. Description of components****1-1. Power supply unit (X00-273X-XX 0-10 : K,M 2-71 : E)**

Ref. No.	Use/Function	Operation/Condition/Compatibility
IC1, 2	Pulse generator ICs	Generate pulse for DC/DC.
IC3	Protection IC	Performs muting when power is turned ON/OFF. Detection of DC leakage to speaker terminals, detection of DC in case of input grounding failure, muting in ASO detection, relay control and turning two-color LED ON/OFF. The controls above are performed when TH1 detects choke coil temperature (120°C) or sub-heat-sink temperature (100°C).
Q1, 2	Bias	Temperature compensation of final transistor.
Q3~14	Cascode bootstrap	VIG circuit.
Q15~18	Driver	Final transistor driver.
Q19~26	Power final stage	
Q27, 28	ASO detector	
Q29~40	Switching	DC/DC driver circuit.
Q41~56	Switching	DC/DC power stage.
Q57~60	Switching	P-CON detection.
Q61	Switching	Transfers ASO detection signal to IC3.
Q62	Constant current circuit	Drivers power relay.
Q63, 64	Switching	TH3 detects 60°C and turns ON the fan.

**1-2. Power amplifier unit (X07-271X-XX 0-10 : K,M 2-71 : E)**

Ref. No.	Use/Function	Operation/Condition/Compatibility
IC1, 2 1/2	Input buffer	Boosts input signal by +10dB and performs balanced transmission.
IC1, 2 2/2	Input buffer inversion stage	Inverts input signal and performs balanced transmission.
IC3	Isolation amp	
IC4	Inverter IC for BTL	
IC5	LPF	For sub-woofer.
IC7, 8	Class A first stage	
Q1, 2	Input MUTE	Main amplifier input muting transistors.
Q3~6	Class A first stage	
Q7~10	Class A second stage	
Q11, 12	Class A cascode	
Q13~16	Class A third stage	
Q17, 18	Class A current mirror	
Q19~22	Constant voltage circuit	For class A control.
Q23, 24	Constant current circuit	Class A ripple elimination circuit.
Q25, 26	Constant current circuit	For class A first stage.
Q27~30	Constant voltage circuit	For balance, ISO, sub-woofer and inverter.
Q31, 32	MUTE driver	Turn muting ON/OFF.
Q33, 34	LED ON/OFF	Green with Q34 ON, then red if Q33 also goes ON.

# CIRCUIT DESCRIPTION

## 2. Two-color LED

### 2-1. Basic operation

- ON operations

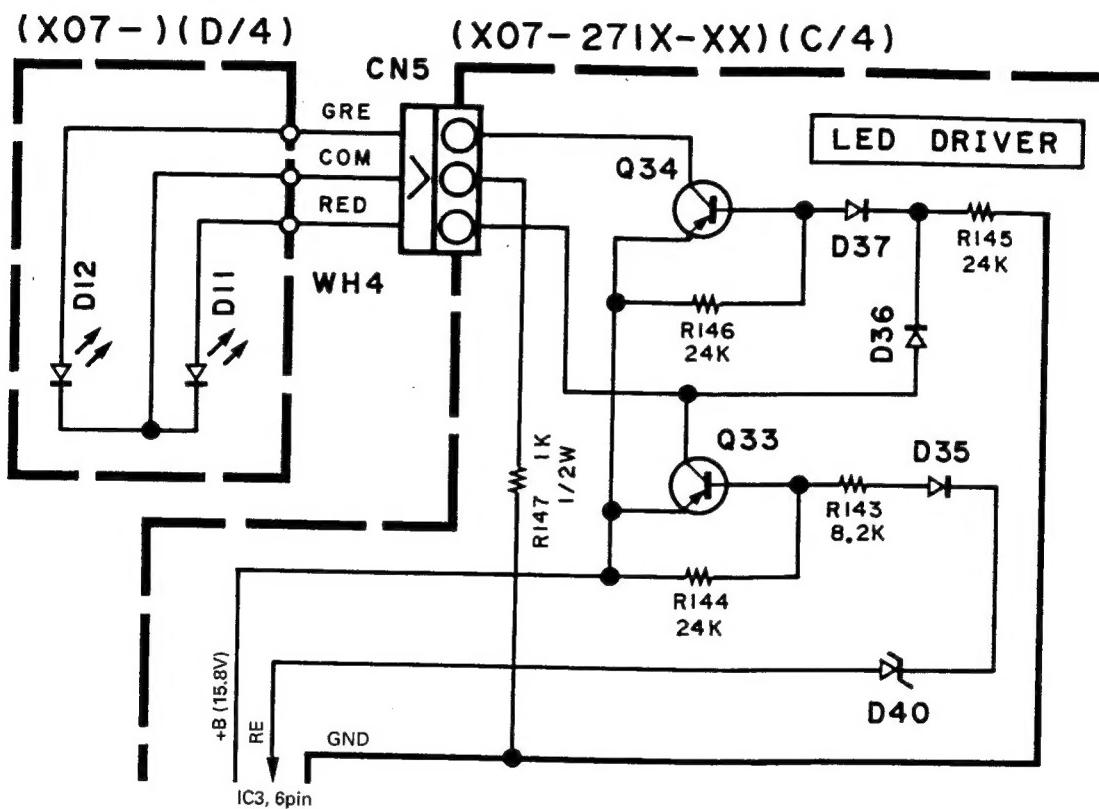
Green LED lights when P-CON is turned ON.  
Red LED lights at the same time as relay ON.

- OFF operations

While P-CON is turned OFF, green LED lights at the same time as relay OFF. The LEDs are OFF in other cases.

### 2-2. Operation principle

When P-CON is turned ON, DC/DC is activated, turning Q34 (X07) ON via +15.8V AVR (X07, Q27) and lighting D12 (Green) (X07). Then, pin 6 of IC3 (X00) goes Low (0.7V), turning the relay ON and Q33 (X07) ON, also lighting D11 (Red) (X07) while inhibiting Q34 (X07). During operation of protection function (ASO, DC leakage or thermal protection), when pin 6 of IC3 (X00) repeats Low (0.7V) and High (10V), the lighting of Red/Green is also repeated at the same time as the relay ON/OFF.



## CIRCUIT DESCRIPTION

## 3. DC/DC circuit with PWM (K type 0-10 only)

## 3-1. Basic operation

This circuit detects the voltage of the secondary side of DC/DC (after rectification and smoothing), that is, main amplifier power supply voltage, and controls the switching pulse duration of DC/DC to make the power supply voltage constant regardless of battery voltage and load variations.

## 3-2. Operation principle

First, let us consider about the variation of the voltage input to DC/DC, BATT (Refer to Fig.1). There is the following relationship

$$: / +B (-B) / = n_2 / n_1 \cdot BATT \cdot TON / T$$

Assuming that the variation of BATT is  $\Delta BATT$ ,  $+B$  ( $-B$ ) can be a constant voltage by varying the pulse duration according to  $\Delta BATT$  as shown below

$$: \Delta ton \neq \Delta BATT / BATT \cdot TON$$

When  $+B$  ( $-B$ ) varies due to a load condition change (ex

: small power/large power, etc.),  $+B$  ( $-B$ ) can be made a constant voltage by varying TON according to the change.

For the detection (Fig.1), it is usually only on the NFB (+) side. By detecting the variation of  $+B$  ( $\Delta VSENSE$ ) with the error amp, the PWM comparator of the next stage is controlled to control the output pulse duration by varying the sawtooth wave slicing level in terms of DC (internal operation of IC). The operations above allow to control TON so that  $+B$  is constant with respect to the variations of  $+B$ .

However, as this power is supplied to the audio amp circuitry, the variations of  $+B$  and  $-B$  are not always identical, making it also necessary to detect  $-B$ . When we take NFB (-) in consideration, the variation component of  $-B$  with respect to VREF, of the error amp is transferred by C1 and R5 (Fig.1), the voltage of  $-B$  is also detected, and TON is controlled accordingly.

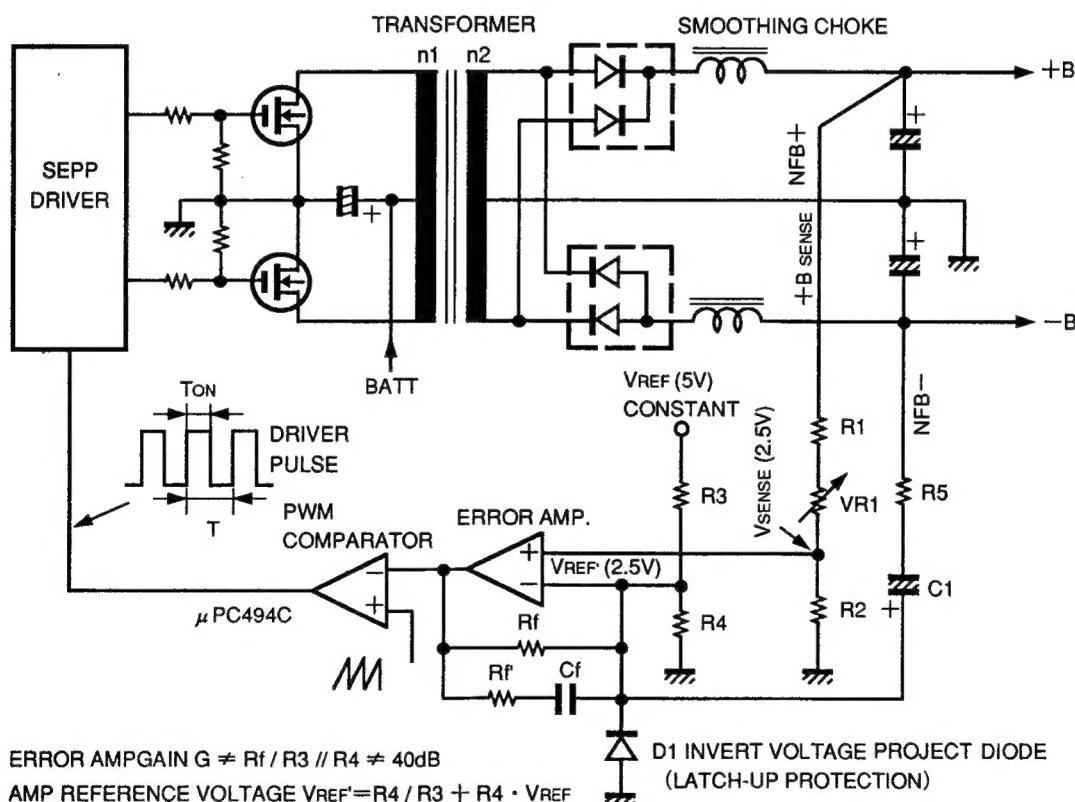
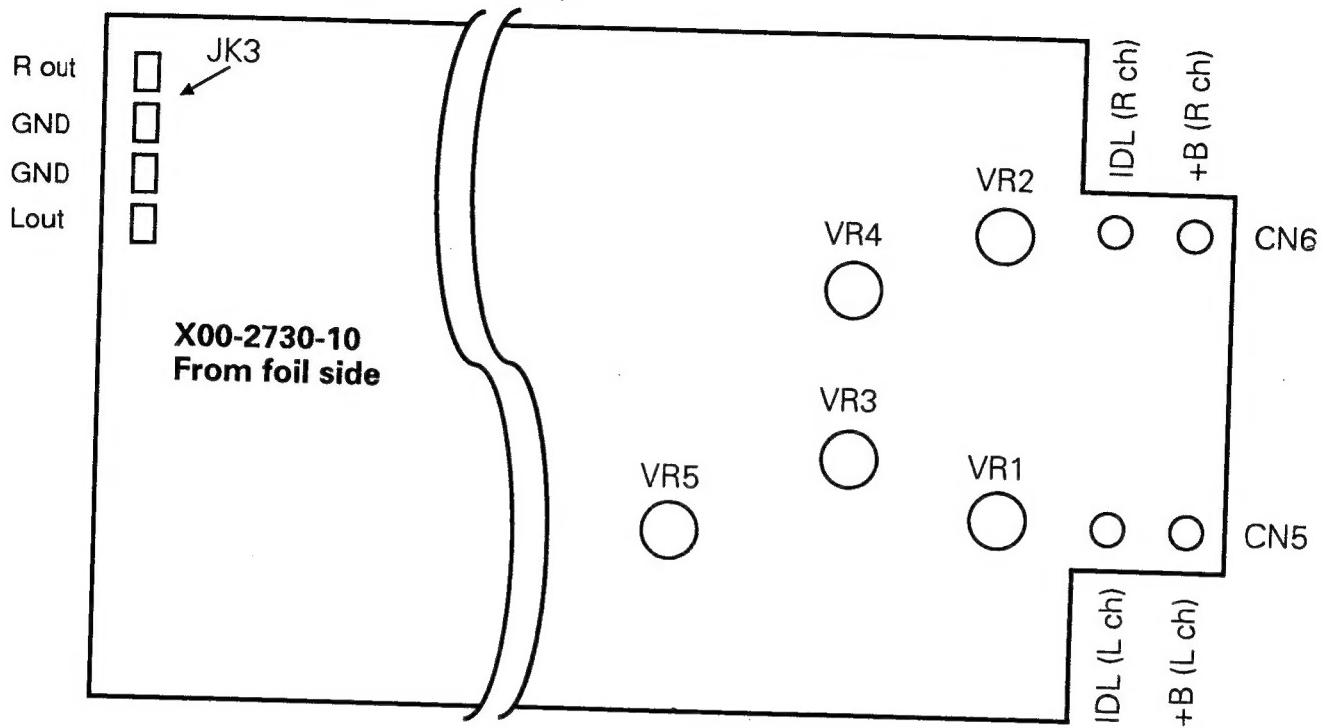


Fig.1

# KAC-1023

## ADJUSTMENT



### (1) Idling adjustment (no-signal current)

Adjust VR1 so that the voltage across IDL (L CH) of CN5 and LOUT of JK3 is 3mV.

Adjust VR2 so that the voltage across IDL (R CH) of CN6 and ROUT of JK3 is 3mV.

### (2) Voltage adjustment (0-10 destination only)

Adjust VR3 so that the voltage across +B (L CH) of CN5 and GND is 51.5V.

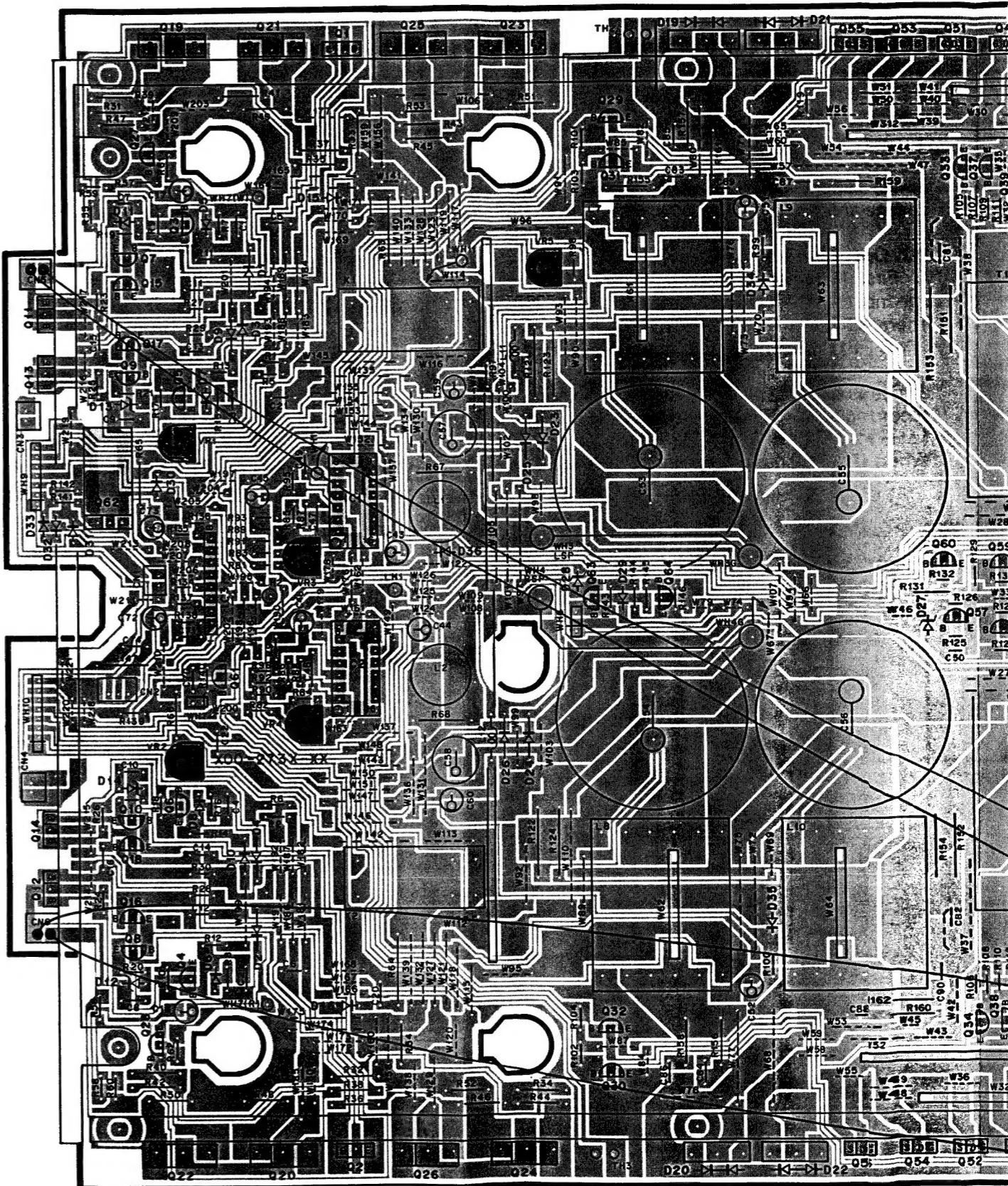
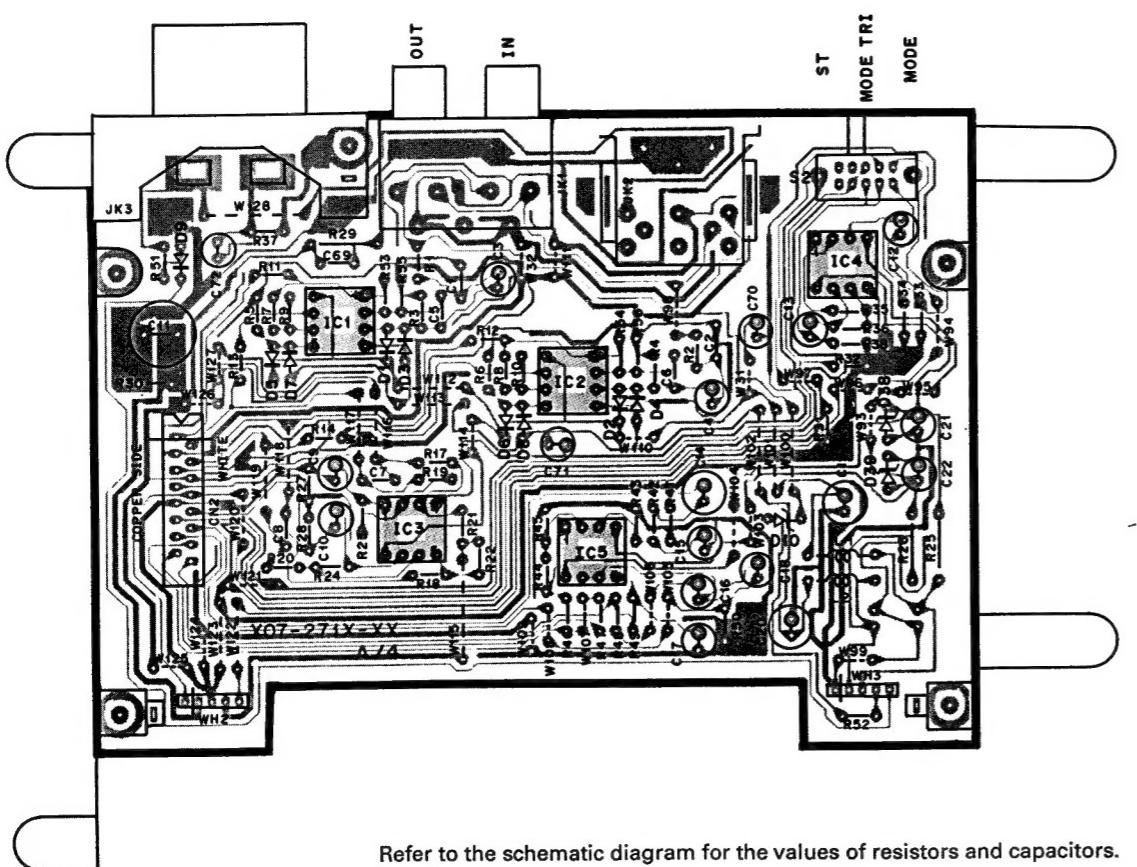
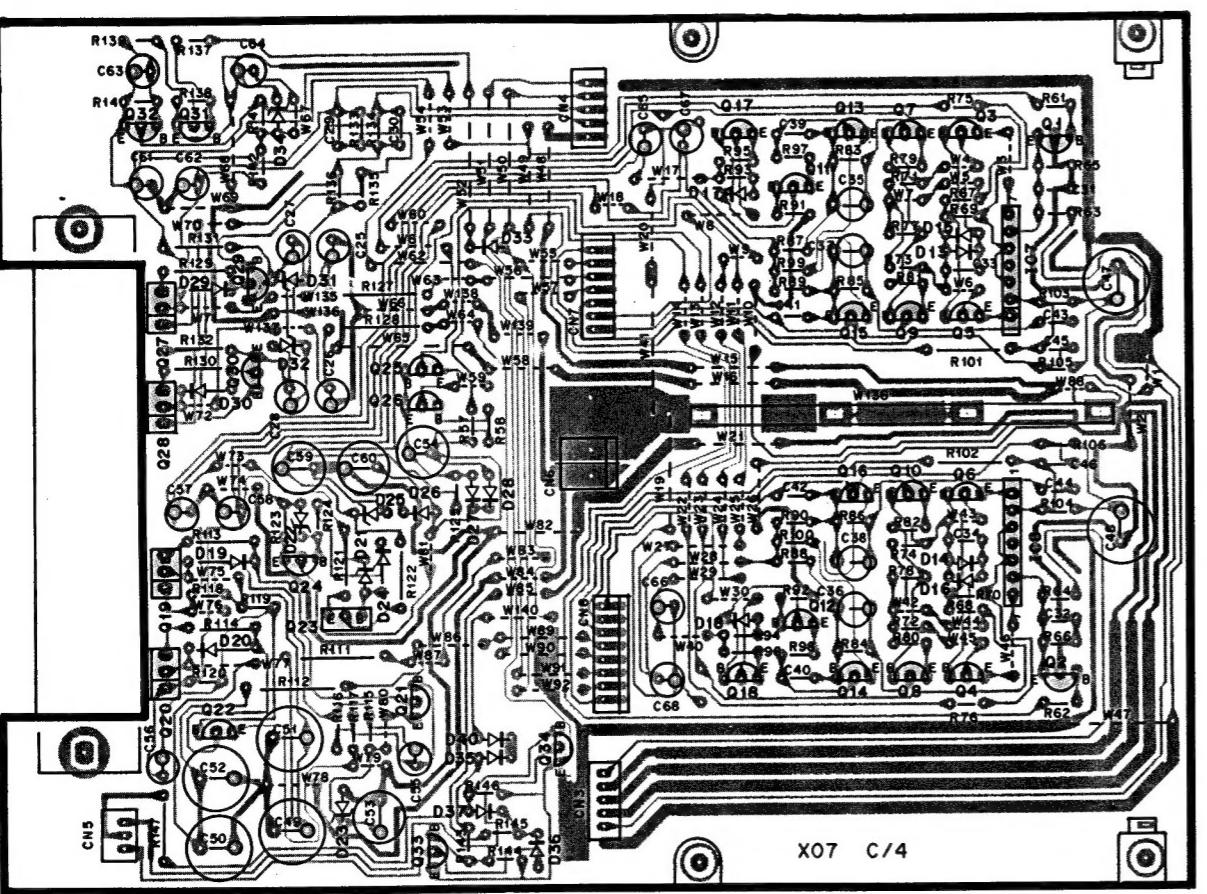
Adjust VR4 so that the voltage across +B (R CH) of CN6 and GND is 51.5V.

### (3) DC/DC frequency variation

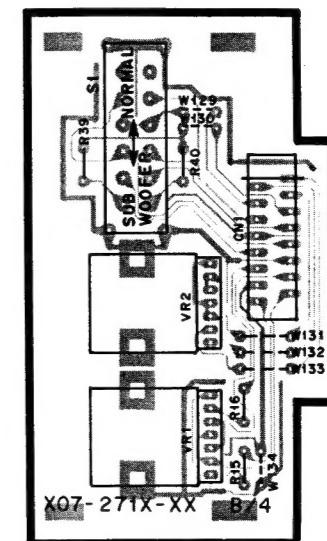
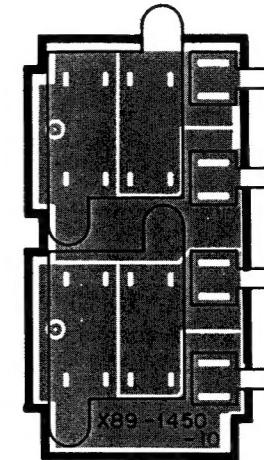
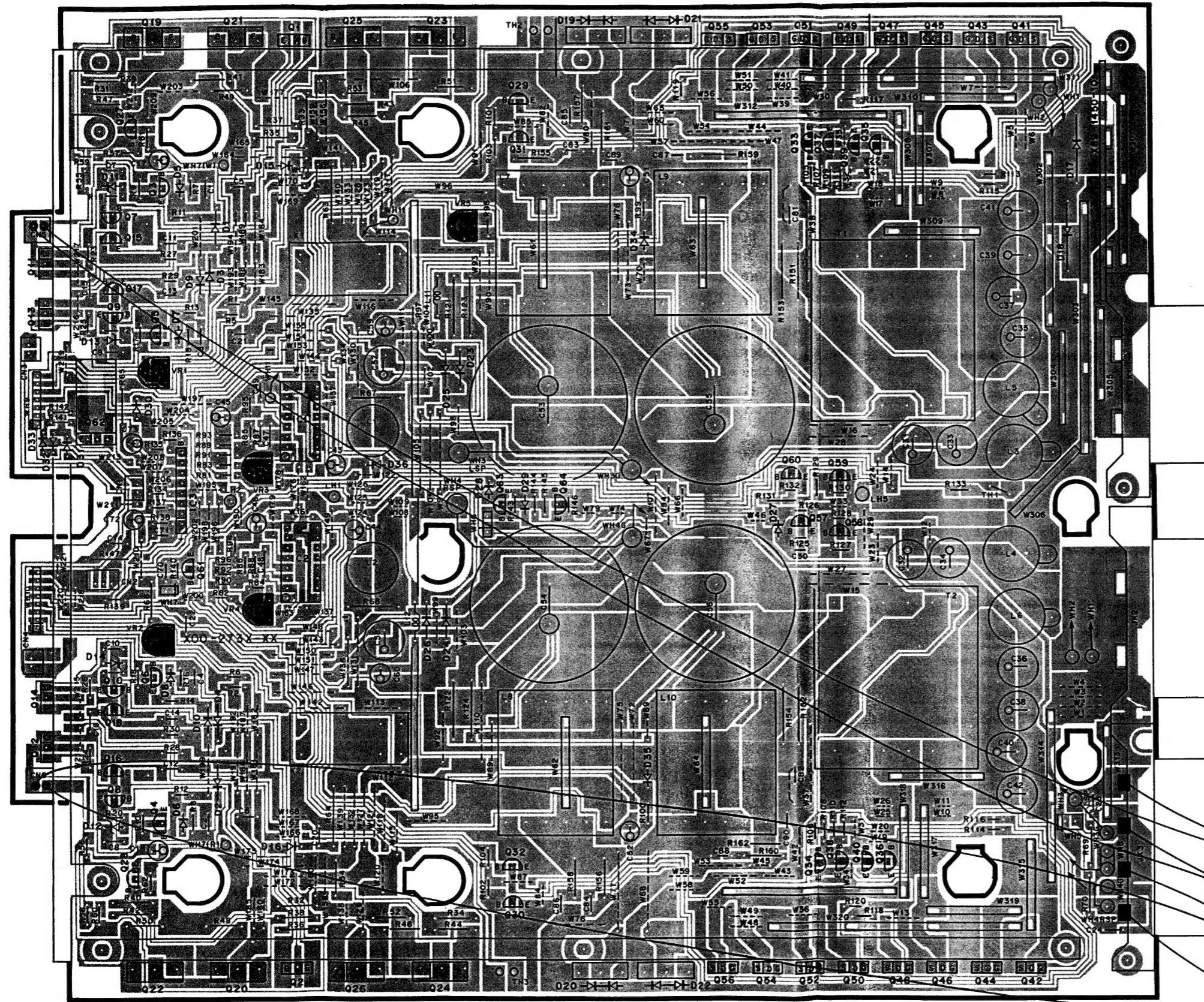
The adjustment is normally not necessary. Use VR5 only as occasion calls.



## **PC BOARD (FOIL SIDE VIEWS)**



Refer to the schematic diagram for the values of resistors and capacitors.



X07 D/4  
D11  
D12  
RED  
GREEN  
WH4  
899

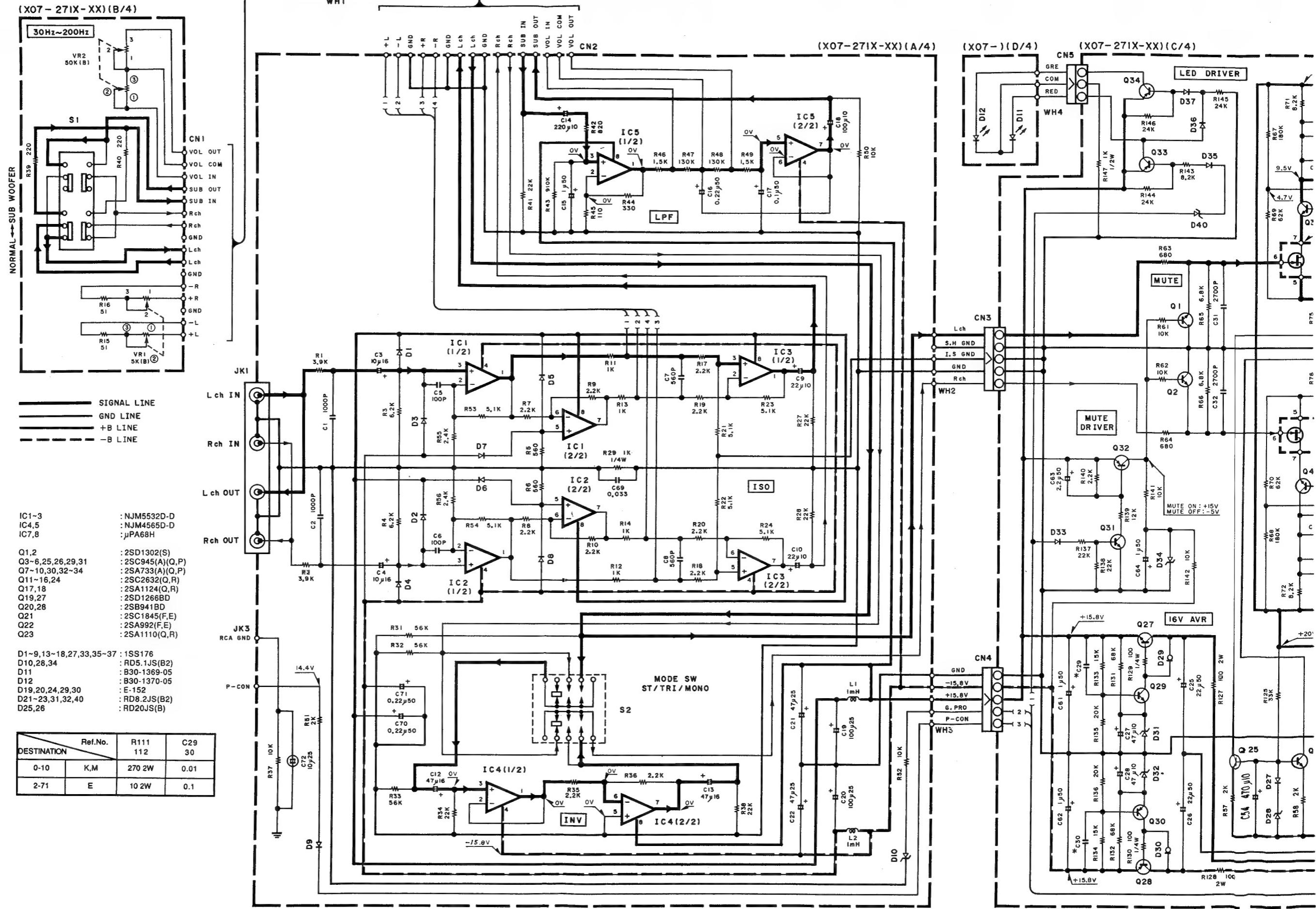
## DC voltmeter

#### (1) IDLING ADJUSTMENT

#### **(2) VOLTAGE ADJUSTMENT**

#### **2. VOLTAGE ADJUSTMENT**

#### (1) IDLING ADJUSTMENT



K

L

M

N

O

P

Q

R

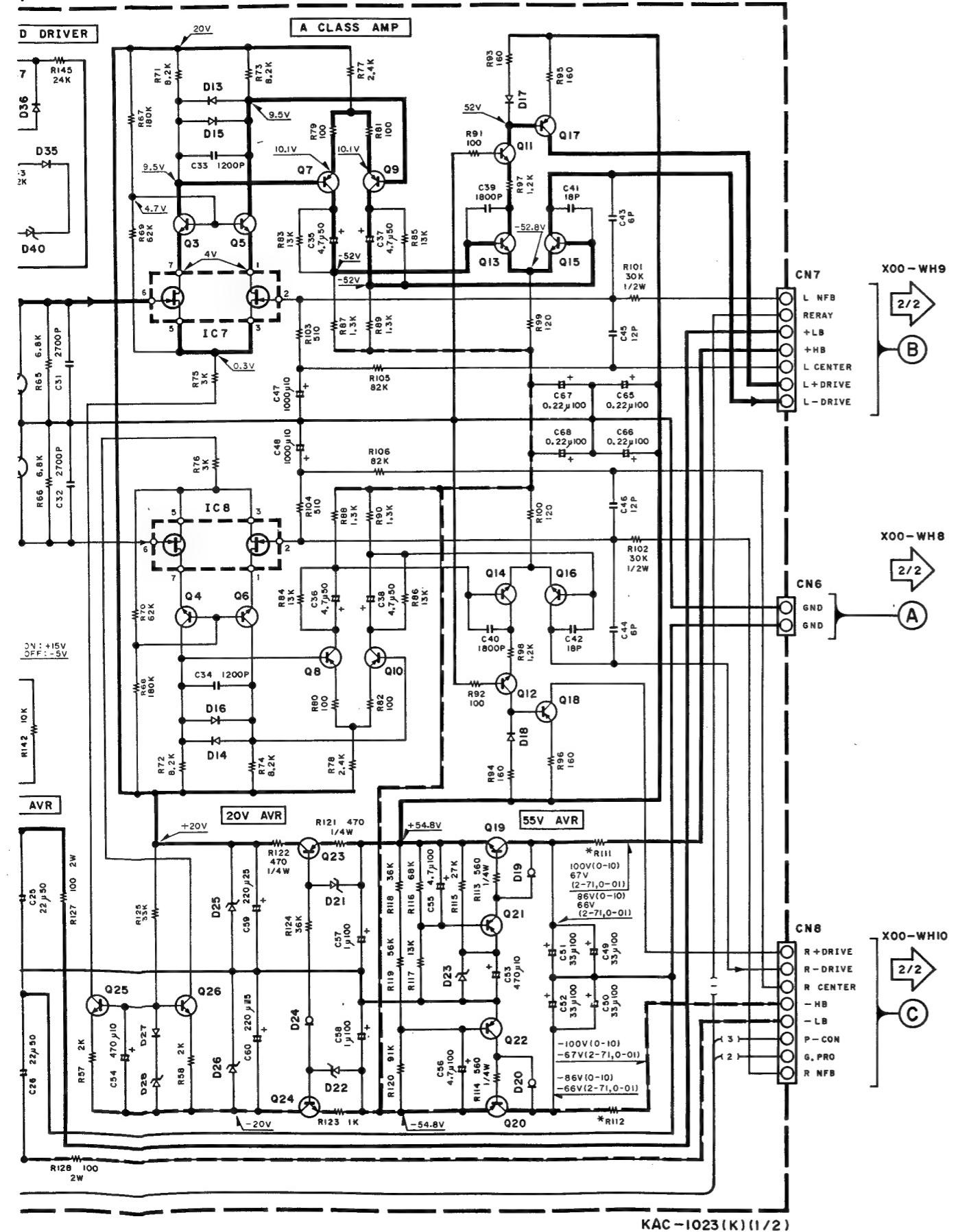
S

T

2SA1123 2SC1845  
 2SA1124 2SC2631  
 2SA1315 2SC2632  
 2SA1534A 2SC3940A  
 2SA733 (A) 2SC945 (A)  
 2SA992 2SD1302

2SA1110

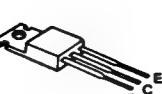
2SB941BD



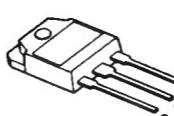
2SA1110  
2SB941BD



2SC3419



2SA1535A  
2SC3944A  
2SD1266BD



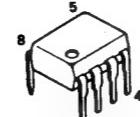
NJM5532D-D



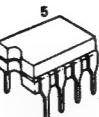
NJM4565D-D



UPC494C



UPC1237HA



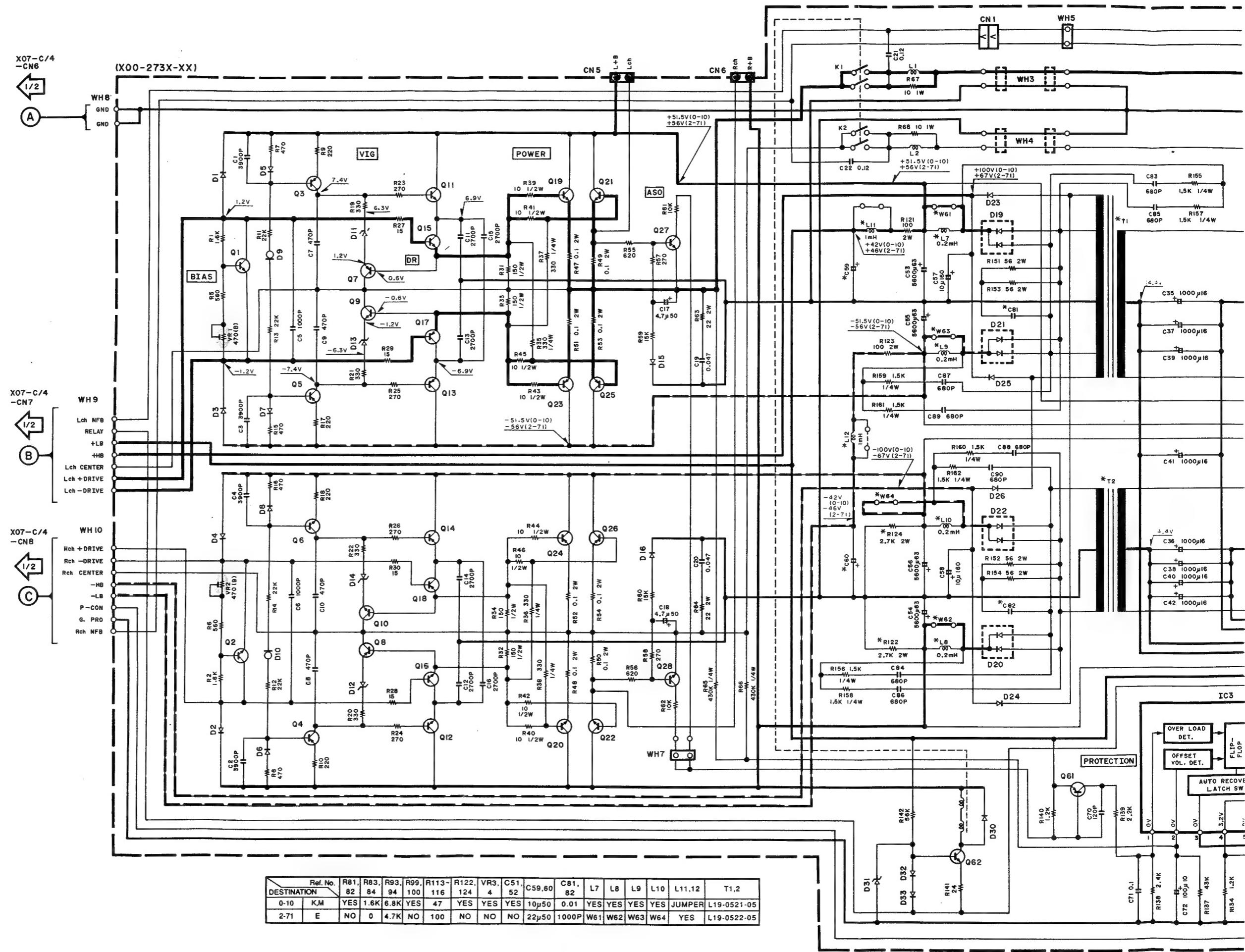
UPA68H

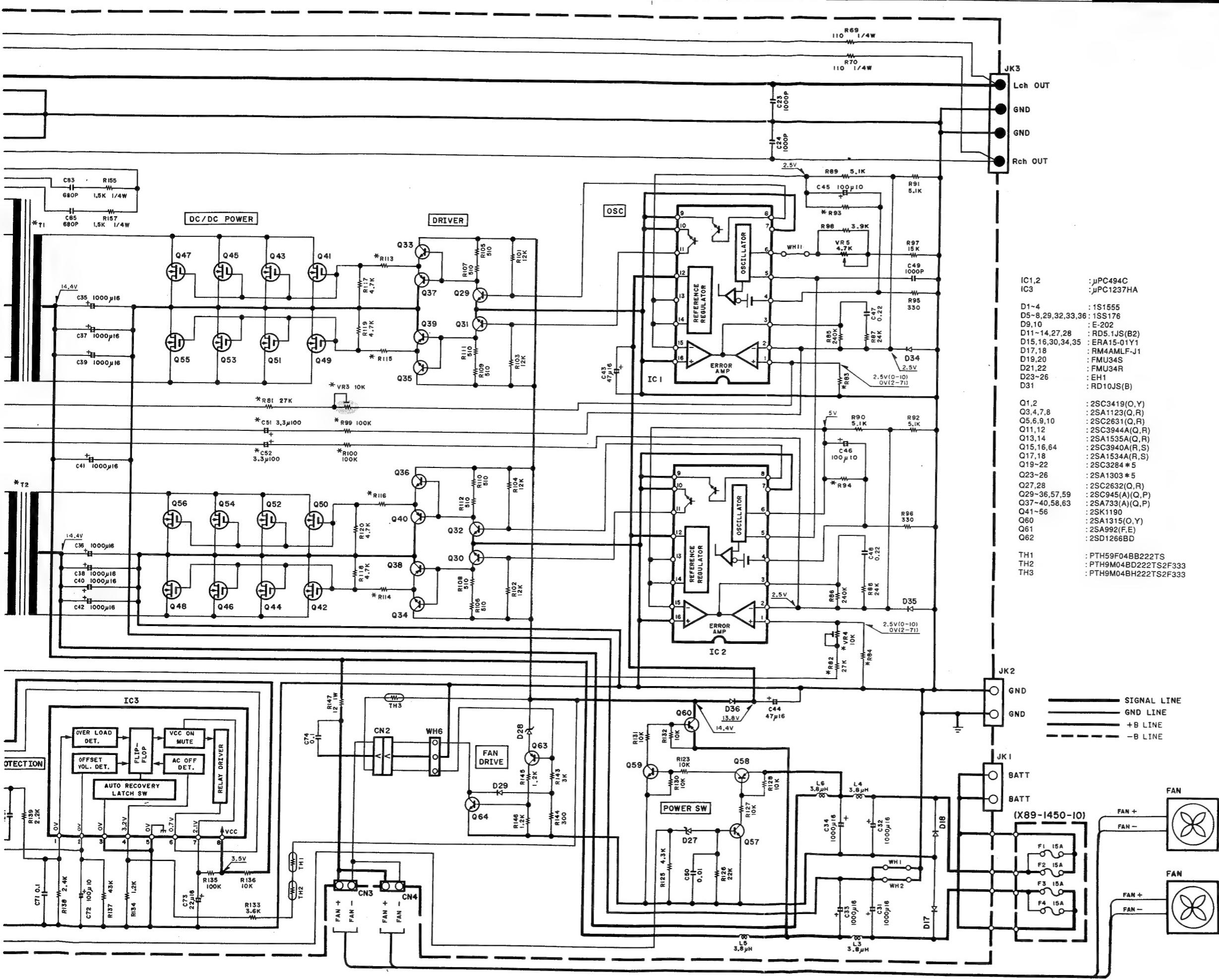


- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

**CAUTION :** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed) parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

**KAC-1023**  
**KENWOOD**





IC1,2 :  
IC3 :  
μPC494C  
μPC1237HA

D1~4 : 1S1555  
D5~8,29,32,33,36 : 1SS176  
D9,10 : E-202  
D11~14,27,28 : RD5.1JS(B2)  
D15,16,30,34,35 : ERA15-01Y1  
D17,18 : RM4AMLF-J1  
D19,20 : FMU34S  
D21,22 : FMU34R  
D23~26 : EH1  
D31 : RD10JS(B)

Q1,2 : 2SC3419(O,Y)  
Q3,4,7,8 : 2SA1123(Q,R)  
Q5,6,9,10 : 2SC2631(Q,R)  
Q11,12 : 2SC3944(Q,R)  
Q13,14 : 2SA1535A(Q,R)  
Q15,16,64 : 2SC3940A(R,S)  
Q17,18 : 2SA1534A(R,S)  
Q19~22 : 2SC2844#5  
Q23~26 : 2SA1303#5  
Q27,28 : 2SC2632(Q,R)  
Q29~36,57,59 : 2SC945(A)(Q,P)  
Q37~40,58,63 : 2SA733(A)(Q,P)  
Q41~56 : 2SK1190  
Q60 : 2SA1315(O,Y)  
Q61 : 2SA992(F,E)  
Q62 : 2SD1266BD

TH1 : PTH59F04BB222TS  
TH2 : PTH9M04BD222TS2F333  
TH3 : PTH9M04BH222TS2F333

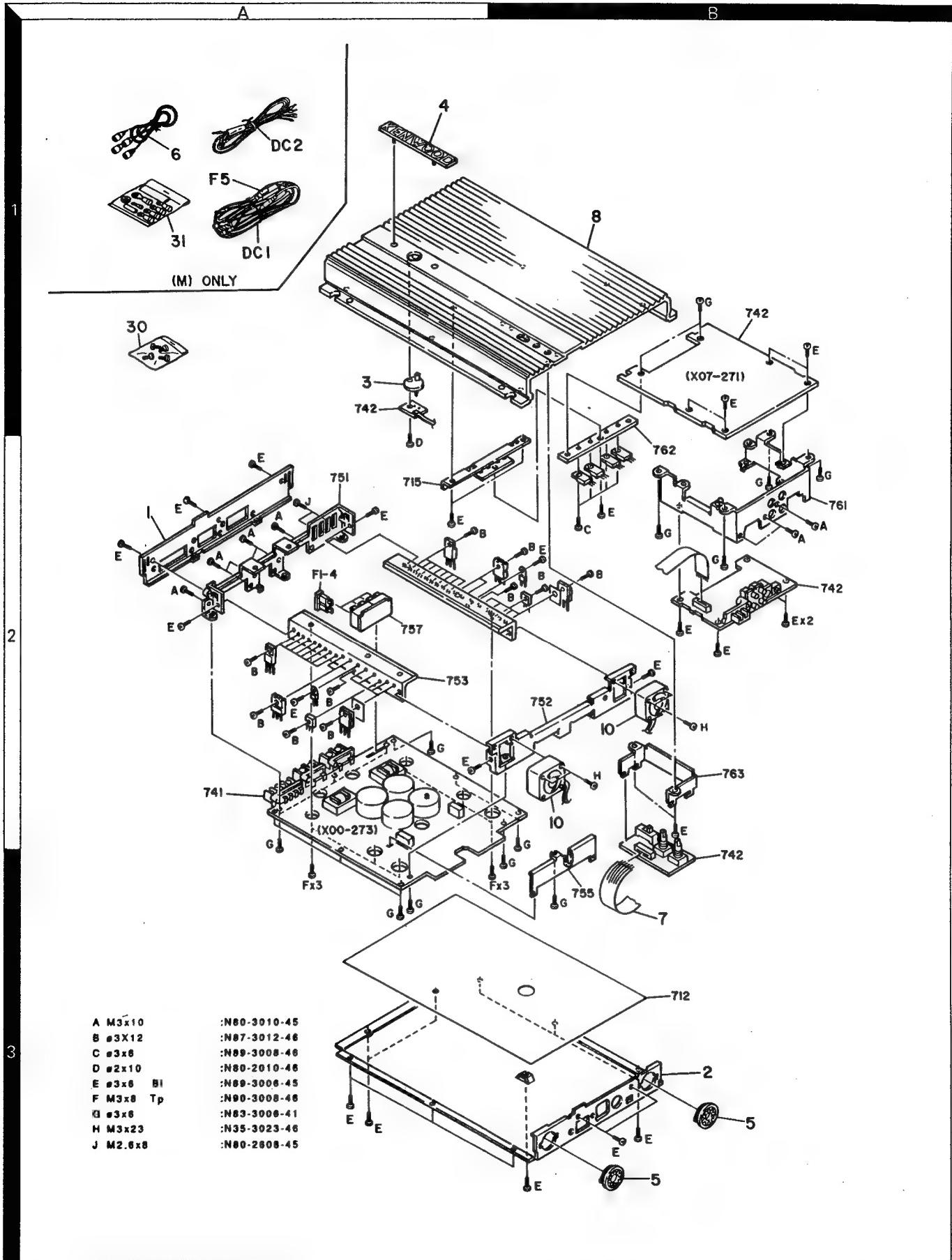
• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

**CAUTION :** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KAC-1023(K)(2/2)

**KAC-1023**  
**KENWOOD**

# **EXPLODED VIEW**



**Parts with the exploded numbers larger than 700 are not supplied.**

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕 向	Re- marks 備考
KAC-1023						
1	2A	*	A23-5044-03	PANEL		
2	3B	*	A40-1235-01	BOTTOM PLATE		
3	1A	*	B19-0886-04	LIGHTING BOARD		
4	1A	*	B43-1205-04	KENWOOD BADGE		
5	3B	*	B07-2028-04	ESCUOTHEON		
-			B44-6006-04	POS LABEL		
-			B46-0100-20	WARRANTY CARD		
-		*	B59-0706-00	SUB-INSTRUCTION MANUAL	M	
-		*	B64-0165-00	INSTRUCTION MANUAL	KM	
-		*	B64-0166-00	INSTRUCTION MANUAL	E	
6	1A		E30-3839-05	AUDIO CORD	M	
7	3B	*	E31-8297-05	FLAT CABLE	M	
DC1	1A		E30-2334-05	DC CORD ASSY	M	
DC2	1A		E30-3583-05	DC CORD	M	
8	1B	*	F01-1379-01	HEAT SINK		
10	2B		F09-1208-05	FAN		
F5	1A		F05-3631-08	FUSE (UL)	M	
F1-4	2A		F05-1537-05	FUSE (15A)		
-		*	H01-9399-04	ITEM CARTON CASE		
-		*	H10-4409-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0336-04	PROTECTION BAG (170X250X0.03)		
30	1A	*	N99-1577-05	SCREW SET		
D	1A		N80-2010-46	PAN HEAD TAPITTE SCREW		
E	2B, 3B		N89-3006-45	BINDING HEAD TAPITTE SCREW		
F	1B		N90-3008-46	TP HEAD MACHINE SCREW		
H	2B		N35-3023-46	BINDING HEAD MACHIN SCREW		
31	1A	*	W01-0717-05	ACCESSORY	M	
POWER SUPPLY (X00-273X-XX) 0-10 : K, M 2-71 : E						
C1 -4			CF92FV1H392J	MF	3900PF	J
C5 ,6			CF92FV1H102J	MF	1000PF	J
C7 -10			CK45FB1H471K	CERAMIC	470PF	K
C11 -16			CF92FV1H272J	MF	2700PF	J
C17			CE04DW1H4R7M	ELECTRO.	4.7UF	50WV
C18			CE04DW1H4R7M	ELECTRO	4.7UF	50WV
C19			CF92FV1H473J	MF	0.047UF	J
C20			CF92V1H473J	MF	0.047UF	J
C21 ,22			CF92V1H124J	MF	0.12UF	J
C23			CF92V1H102J	MF	1000PF	J
C24			CF92FV1H102J	MF	1000PF	J
C31 -42		*	C90-2660-05	ELECTRO	1000UF	16WV
C43			CE04DW1C470M	ELECTRO	47UF	16WV
C44			CE04DW1C470M	ELECTRO	47UF	16WV
C45 ,46			CE04DW1A101M	ELECTRO	100UF	10WV
C47 ,48			CF92V1H224J	MF	0.22UF	J
C49			CF92FV1H102J	MF	1000PF	J
C50			CF92FV1H103J	MF	0.010UF	J
C51 ,52		*	CE04DW2A3R3M	ELECTRO	3.3UF	100WV
C53 -56		*	C90-2659-05	ELECTRO	5600UF	63WV
C57 ,58		*	C90-2661-05	ELECTRO	10UF	160WV
C59 ,60			CE04DW1H100M	ELECTRO	10UF	50WV
						K

E: Scandinavia &amp; Europe K: USA P: Canada W: Europe

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格				Desti- nation 仕向	Re- marks 備考
C59 ,60			CE04DW1H220M	ELECTRO	22UF	50WV		E	
C70			CC45FSL1H121J	CERAMIC	120PF	J			
C71			CF92V1H104J	MF	0.10UF	J			
C72			CE04DW1A101M	ELECTRO	100UF	10WV			
C73			CE04DW1C220M	ELECTRO	22UF	16WV			
C74			CF92FV1H104J	MF	0.10UF	J			
C81 ,82			CK45E2H103P	CERAMIC	0.010UF	P		KM	
C81 ,82			CQ93HP2A102J	MYLAR	1000PF	J		E	
C83 -90		*	CQ93HP2A681J	MYLAR	680PF	J			
JK1 ,2		*	E70-0804-05	SCREW TERMINAL BOARD					
JK3			E20-0479-05	SCREW TERMINAL BOARD(4P)					
LH1 ,2			J19-2826-05	HOLDER					
L1 ,2			L39-0157-05	PHASE-COMPENSATION COIL					
L3 -6			L33-0331-05	CHOKE COIL					
L7 -10		*	L33-0989-05	CHOKE COIL					
T1 ,2		*	L19-0521-05	TRANSFORMER FOR CONVERTER				KM	
T1 ,2		*	L19-0522-05	TRANSFORMER FOR CONVERTER				E	
A	2A	*	N80-3010-45	PAN HEAD TAPPIED SCREW					
B	2A		N87-3012-46	BRAZIER HEAD TAPPIED SCREW					
E	2A		N89-3006-45	BINDING HEAD TAPPIED SCREW					
G	2A		N83-3006-41	PAN HEAD TAPPIED SCREW					
J	2A		N80-2608-45	PAN HEAD TAPPIED SCREW					
R31 -34			RD14DB2H151J	SMALL-RD	150	J	1/2W		
R39 -46			RD14DB2H100J	SMALL-RD	10	J	1/2W		
R47 -54			R92-0205-05	METAL-PLATE	0.1	K	2W		
R63 ,64			RS14KB3D220J	FL-PROOF RS	22	J	2W		
R67 ,68			RS14KB3A100J	FL-PROOF RS	10	J	1W		
R121			RS14KB3D101J	FL-PROOF RS	100	J	2W		
R122			RS14KB3D272J	FL-PROOF RS	2.7K	J	2W	KM	
R123			RS14KB3D101J	FL-PROOF RS	100	J	2W		
R124			RS14KB3D272J	FL-PROOF RS	2.7K	J	2W	KM	
R147			RS14DB3A120J	FL-PROOF RS	12	J	1W		
R151-154			RS14KB3D560J	FL-PROOF RS	56	J	2W		
VR1 ,2			R12-0094-05	TRIMMING POT.(470)					
VR3 ,4			R12-3096-05	TRIMMING POT.(10K)					
VR5			R12-1069-05	TRIMMING POT.(4.7K)				KM	
K1 ,2		*	S76-0804-05	MAGNETIC RELAY					
D1 -4			1S1555	DIODE					
D5 -8			1SS176	DIODE					
D9 ,10			E-202	CONSTANT CURRENT DIODE					
D11 -14			RD5.1JS(B2)	ZENER DIODE					
D15 ,16			ERA15-01Y1	DIODE					
D17 ,18		*	RM4AMLF-J1	DIODE					
D19 ,20		*	FMU34S	DIODE					
D21 ,22		*	FMU34R	DIODE					
D23 -26		*	EH1	DIODE					
D27 ,28			RD5.1JS(B2)	ZENER DIODE					
D29			1SS176	DIODE					
D30			ERA15-01Y1	DIODE					
D31			RD10JS(B)	ZENER DIODE					
D32 ,33			1SS176	DIODE					
D34 ,35			ERA15-01Y1	DIODE				KM	

E: Scandinavia &amp; Europe K: USA P: Canada W: Europe

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

 indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
D36			1SS176	DIODE		
IC1 ,2			UPC494C	IC(SWITCHING REGULATOR)		
IC3			UPC1237HA	IC(POWER AMP)		
Q1 ,2			2SC3419(Y)	TRANSISTOR		
Q3 ,4			2SA1123(Q,R)	TRANSISTOR		
Q5 ,6			2SC2631(Q,R)	TRANSISTOR		
Q7 ,8			2SA1123(Q,R)	TRANSISTOR		
Q9 ,10			2SC2631(Q,R)	TRANSISTOR		
Q11 ,12			2SC3944A(Q,R)	TRANSISTOR		
Q13 ,14			2SA1535A(Q,R)	TRANSISTOR		
Q15 ,16			2SC3940A(R,S)	TRANSISTOR		
Q17 ,18			2SA1534A(R,S)	TRANSISTOR		
Q19 -22			2SC3284*5	TRANSISTOR		
Q23 -26			2SA1303*5	TRANSISTOR		
Q27 ,28			2SC2632(Q,R,S)	TRANSISTOR		
Q29 -36			2SC945(A)(Q,P)	TRANSISTOR		
Q37 -40			2SA733(A)(Q,P)	TRANSISTOR		
Q41 -56	*		2SK1190	FET		
Q57			2SC945(A)(Q,P)	TRANSISTOR		
Q58			2SA733(A)(Q,P)	TRANSISTOR		
Q59			2SC945(A)(Q,P)	TRANSISTOR		
Q60			2SA1315	TRANSISTOR		
Q61			2SA992(F,E)	TRANSISTOR		
Q62			2SD1266BD	TRANSISTOR		
Q63			2SA733(A)(Q,P)	TRANSISTOR		
Q64			2SC3940A(R,S)	TRANSISTOR		
TH1			PTH59F04BB222TS	POSITIVE RESISTOR		
TH2	*		PTH9M04BD222T	POSITIVE RESISTOR		
TH3	*		PTH9M04BH222T	POSITIVE RESISTOR		

## POWER AMP (X07-271X-XX) 0-10 : K, M 2-71 : E

D11		*	B30-1369-05	LED		
D12		*	B30-1370-05	LED		
C1 ,2			CF92FV1H102J	MF	1000PF	J
C3 ,4			CE04DW1C100M	ELECTRO	10UF	16WV
C5 ,6			CK45FB1H101K	CERAMIC	100PF	K
C7 ,8			CK45FB1H561K	CERAMIC	560PF	K
C9 ,10			CE04DW1C470M	ELECTRO	47UF	16WV
C12 ,13			CE04DW1C470M	ELECTRO	47UF	16WV
C14			CE04DW1A221M	ELECTRO	220UF	10WV
C15			CE04DW1H010M	ELECTRO	1.0UF	50WV
C16			CE04DW1HR22M	ELECTRO	0.22UF	50WV
C17			CE04DW1H0R1M	ELECTRO	0.1UF	50WV
C18			CE04DW1A101M	ELECTRO	100UF	10WV
C19 ,20			CE04DW1E101M	ELECTRO	100UF	25WV
C21 ,22			CE04DW1E470M	ELECTRO	47UF	25WV
C25 ,26			CE04DW1H220M	ELECTRO	22UF	50WV
C27 ,28			CE04DW1A470M	ELECTRO	47UF	10WV
C29 ,30			CF92FV1H103J	MF	0.010UF	J
C29 ,30			CF92FV1H104J	MF	0.10UF	J
C31 ,32			CF92FV1H272J	MF	2700PF	J
C33 ,34			CF92FV1H122J	MF	1200PF	J
C35 -38			CE04KW1H4R7M	ELECTRO	4.7UF	50WV
C39 ,40			CF92FV1H182J	MF	1800PF	J
C41 ,42			CC45FSL1H180J	CERAMIC	18PF	J

E: Scandinavia &amp; Europe K: USA P: Canada W:Europe

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

▲ indicates safety critical components.

# PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規 格			Desti- nation 仕 向	Re- marks 備考
C43 , 44			CC45FSL1H060D	CERAMIC	6.0PF	D		
C45 , 46			CC45FSL1H120J	CERAMIC	12PF	J		
C47 , 48			C90-1643-05	ELECTRO	1000UF	6.3WV		
C49 -52		*	CE04DW2A330M	ELECTRO	33UF	100WV		
C53 , 54			CE04KW1A471M	ELECTRO	470UF	10WV		
C55 , 56			CE04DW2A4R7M	ELECTRO	4.7UF	100WV		
C57 , 58			CE04DW2A010M	ELECTRO	1.0UF	100WV		
C59 , 60			CE04KW1E221M	ELECTRO	220UF	25WV		
C61 , 62			CE04DW1H010M	ELECTRO	1.0UF	50WV		
C63			CE04DW1H2R2M	ELECTRO	2.2UF	50WV		
C64		*	CE04DW1H010M	ELECTRO	1.0UF	50WV		
C65 -68		*	CE04DW2AR22M	ELECTRO	0.22UF	100WV		
C69			CF92FV1H333J	MF	0.033UF	J		
C70 , 71			CE04DW1HR22M	ELECTRO	0.22UF	50WV		
C72			CE04BW1E100M	NP-ELEC	10UF	25WV		
JK1			E13-1401-05	PHONE JACK				
JK3		*	E20-0239-05	SCREW TERMINAL BOARD(2P)				
L1 , 2			L40-1021-14	SMALL FIXED INDUCTOR(1MH)				
A	2B	*	N80-3010-45	PAN HEAD TAPTITE SCREW				
C	2B	*	N89-3008-46	BINDING HEAD TAPTITE SCREW				
G	2B	*	N83-3006-41	PAN HEAD TAPTITE SCREW				
R7 -10		*	R92-2102-05	METAL FILM	2.2K	D	1/6W	
R11 -14		*	R92-2101-05	METAL FILM	1K	D	1/6W	
R17 -20		*	R92-2102-05	METAL FILM	2.2K	D	1/6W	
R21 -24		*	R92-2103-05	METAL FILM	5.1K	D	1/6W	
R101,102			R92-2010-05	CARBON FILM	330K	J	1/2W	
R111,112			RS14KB3D100J	FL-PROOF RS	10	J	2W	
R111,112			RS14KB3D271J	FL-PROOF RS	270	J	2W	
R127,128			RS14KB3D101J	FL-PROOF RS	100	J	2W	
R147		*	RD14DB2H102J	SMALL-RD	1.0K	J	1/2W	E KM
VR1		*	R10-2622-05	POTENTIOMETER(5K)				
VR2		*	R10-4645-05	POTENTIOMETER(50K)				
S1		*	S62-0810-05	SLIDE SWITCH				
S2		*	S31-2630-05	SLIDE SWITCH				
D1 -9			ISS176	DIODE				
D10			RD5.1JS(B2)	ZENER DIODE				
D13 -18			ISS176	DIODE				
D19 , 20			E-152	CONSTANT CURRENT DIODE				
D21 -23			RD8.2JS(B2)	ZENER DIODE				
D24			E-152	CONSTANT CURRENT DIODE				
D25 , 26			RD20JS(B)	ZENER DIODE				
D27			ISS176	DIODE				
D28			RD5.1JS(B2)	ZENER DIODE				
D29 , 30			E-152	CONSTANT CURRENT DIODE				
D31 , 32			RD8.2JS(B2)	ZENER DIODE				
D33			ISS176	DIODE				
D34			RD5.1JS(B2)	ZENER DIODE				
D35 -37			ISS176	DIODE				
D40			RD8.2JS(B2)	ZENER DIODE				
IC1 -3		*	NJM5532D-D	IC(OP AMP X2)				
IC4 , 5			NJM4565D-D	IC(OP AMP X2)				
IC7 , 8			UPA68H	DUAL FET				

E: Scandinavia &amp; Europe K: USA P: Canada W:Europe

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新 品	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕 向	Re- marks 備考
Q1 , 2			2SD1302(S)	TRANSISTOR		
Q3 -6			2SC945(A)(Q,P)	TRANSISTOR		
Q7 -10			2SA733(A)(Q,P)	TRANSISTOR		
Q11 -16			2SC2632(Q,R,S)	TRANSISTOR		
Q17 , 18			2SA1124(Q,R,S)	TRANSISTOR		
Q19			2SD1266BD	TRANSISTOR		
Q20			2SB941BD	TRANSISTOR		
Q21			2SC1845(F,E)	TRANSISTOR		
Q22			2SA992(F,E)	TRANSISTOR		
Q23			2SA1110(Q,R)	TRANSISTOR		
Q24			2SC2632(Q,R,S)	TRANSISTOR		
Q25 , 26			2SC945(A)(Q,P)	TRANSISTOR		
Q27			2SD1266BD	TRANSISTOR		
Q28			2SB941BD	TRANSISTOR		
Q29			2SC945(A)(Q,P)	TRANSISTOR		
Q30			2SA733(A)(Q,P)	TRANSISTOR		
Q31			2SC945(A)(Q,P)	TRANSISTOR		
Q32 -34			2SA733(A)(Q,P)	TRANSISTOR		
<b>DAUGHTER (X89-1450-10)</b>						
-			J13-0070-05	FUSE HOLDER		

E: Scandinavia &amp; Europe K: USA P: Canada W:Europe

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

⚠ indicates safety critical components.

## SPECIFICATIONS

**Audio section**

Max power output

4Ω : K, M type .....	600W x 2
: E type .....	500W x 2
4Ω bridged : K, M type .....	1200W x 1
: E type .....	1300W x 1

Rated power output

4Ω .....	200W x 2 (20Hz ~ 20kHz, less than 0.05% THD)
2Ω .....	300W x 2 (1kHz, 0.05% THD)
4Ω bridged .....	600W x 1 (1kHz, 0.05% THD)

Frequency response .....

2 ~ 45kHz (-3dB)

Signal to noise ratio .....

105dB

Sensitivity

Max .....	0.15V (rated output)
Min .....	3.0V (rated output)

Input impedance .....

10kΩ (at 1kHz)

Damping factor .....

More than 5000 (100Hz)

Low pass filter frequency .....

30 ~ 200Hz (variable)

**General**

Operating voltage

: K, M type .....	12.0V (11 ~ 16 allowable)
: E type .....	14.4V (11 ~ 16 allowable)

Current consumption (Max) .....

80A

Dimensions .....

W : 273 x H : 56 x D : 400 (mm)  
10-3 / 4 x 2-3 / 16 x 15-3 / 4 (inch)

Weight

: K, M type .....	6.7kg (14.8lb)
: E type .....	6.5kg (14.3lb)

**Note:**

KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

**Note :**

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

**KENWOOD CORPORATION**

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

**KENWOOD U.S.A. CORPORATION**

2201 East Dominguez Street, Long Beach, CA 90810:

550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

**KENWOOD ELECTRONICS CANADA INC.**

6070 Kestrel Road, Mississauga, Ontario, Canada L6T 1S8

**TRIO-KENWOOD U.K. LTD.**

KENWOOD HOUSE, Dwight Road, Watford, Herts., WD1 8EB United Kingdom

**KENWOOD ELECTRONICS BENELUX N.V.**

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

**KENWOOD ELECTRONICS DEUTSCHLAND GMBH**

Rembrucker-Str. 15, 6056 Heusenstamm, Germany

**TRIO-KENWOOD FRANCE S.A.**

13 Boulevard Ney, 75018 Paris, France

**KENWOOD LINEAR S.p.A.**

20125, MILANO-VIA ARBE, 50, ITALY

**KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (A.C.N 001 499 074)**

P.O. BOX 504, 8 FIGTREE DRIVE, AUSTRALIA CENTRE, HOMEBUSH, N.S.W. 2140, AUSTRALIA

**KENWOOD & LEE ELECTRONICS, LTD.**

Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong